1636

PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#13

In re Application of:

Wilson et al.

Serial No. **09/402,936**

Art Unit: **1636**

Examiner: **D. Guzo**

Filed: **January 3, 2000**

For: **Recombinant bHLH-PAS/JHR Polypeptide and Its Use To Screen Potential Insecticides**

RESPONSE TO OFFICE ACTION

Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicants hereby respond to the Office Action mailed October 3, 2002, a response to which is due November 3, 2002. The Office Action states that the reply filed 6/5/02 is not fully responsive to the Notice to Comply with the Sequence Rules or CRF Diskette Problem Report. Specifically, an amino acid sequence listed as SEQ ID NO:14 is present on page 67 of the specification while the Sequence Listing only contains 13 sequences.

Applicants submit that the sequence on page 67, LXXLL, is not required to be contained within a sequence listing pursuant to 37 CFR § 1.821(a). More specifically, it is stated therein that " sequences with fewer than four specifically defined nucleotides or amino acids are specifically excluded from this section. 'Specifically defined' means those amino acids other than 'Xaa' and those nucleotide bases other than 'n' defined in accordance with the World Intellectual Property Organization (WIPO) Handbook..." Since the LXXLL sequence only contains three specifically defined amino acids, it is our understanding that this sequence does not need to be included in the sequence listing. However, in order to facilitate prosecution,

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, Washington, DC 20231, on October 22, 2002.

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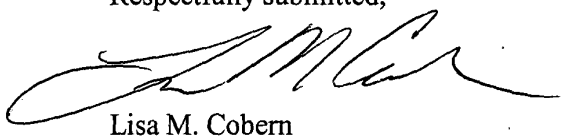
Applicants have attached a substitute page 67 that removes the SEQ ID NO:14 identifier from the sequence. Applicants hereby request entry of substitute page 67 into the above-referenced application, or in the alternative, Applicants request replacement of lines 21-27 on page 67 to the following:

> --*Met*-JHR also contains the "LXXLL" motif which likens *Met* to steroid receptor co-activators. Although this motif is found in many proteins, it plays a significant role in proteins that interact with co-activators of steroid receptors. LXXLL also has been found in a bHLH-PAS protein that is a cofactor (ACTR) [Chen *et al. Cell* 90:569 (1997)] that is amplified in breast cancer-1 (AIBC). Anzisk *et al. Science* 277:965 (1977).. This bHLH-PAS protein (ACTR/AIBC) interacts with a steroid--

Applicants believe that the present communication is a full and complete response to the Office Action dated October 3, 2002. No additional fees are believed due; however, the Commissioner is hereby authorized to charge any additional fees that may be required, or credit any overpayment to Deposit Account No. 19-5029. The Examiner is invited and encouraged to contact the undersigned attorney of record if such contact will facilitate an efficient examination and allowance of the application.

Respectfully submitted,



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members include ARNT (DARNT), Trachealess (*Trh*) and Single-minded (*Sim*).

The ARNT and AHR proteins are involved as heterodimeric partners in binding a variety of environmental toxicants, including dioxin, and subsequently activating a variety of genes important in the degradation of these chemicals, such as the cytochrome P450 genes. Figure 6 indicates that *Met*-JHR is neither DARNT nor AHR. However, *Met*-JHR shares considerable homology to human AHR in the ligand binding region of AHR, which is amino acids 200-400 of AHR. Rowlands *et al. Crit. Rev. Toxicol.* 27:109 (1997). Another feature apparent from visual inspection of the *Met*-JHR sequence is the *Met*-JHR, like human ARH (HARH), has a high concentration of serine and threonine residues at its carboxyl terminus. This is the motif of a S/P/T transactivation domain, as noted above. In ARH, this domain has been shown to be a functional TAD.

These features support the hypothesis that the mechanism of action of *Met*-JHR is similar to AHR, *i.e.*, *Met*-JHR binds the JH ligand. In addition, the *Met*-JHR may heterodimerize the DARNT or a DARNT-like protein in order to bind a JH response element and mediate JH action. The bHLH domain has been shown to be involved in dimerization and DNA binding. Rowlands *et al. Critical Reviews in Toxicology*, 27:109 (1997).

Met-JHR also contains the "LXXLL" motif which likens *Met* to steroid receptor co-activators. Although this motif is found in many proteins, it plays a significant role in proteins that interact with co-activators of steroid receptors. LXXLL also has been found in a bHLH-PAS protein that is a cofactor (ACTR) [Chen *et al. Cell* 90:569 (1997)] that is amplified in breast cancer-1 (AIBC). Anzisk *et al. Science* 277:965 (1977). This bHLH-PAS protein (ACTR/AIBC) interacts with a steroid